

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

061/088

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

Unassigned

09/485225

INTERNATIONAL APPLICATION NO.

PCT FR98/01769

INTERNATIONAL FILING DATE

08 August 1998

PRIORITY DATE CLAIMED

08 August 1997

## TITLE OF INVENTION

A HIGH -STRENGTH HOOK, IN PARTICULAR FOR AN ELASTIC CABLE

## APPLICANT(S) FOR DO/EO/US

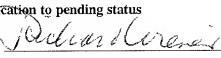
1) Xavier JOUBERT and 2) Thierry JOUBERT

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. X This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. § 371.
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. X A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. X A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. X has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. X A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the Annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11. to 16. below concern other document(s) or information included:

11. X An Information Disclosure Statement under 37 CFR 1.97 and 1.98, Form PTO-1449 and no references.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. X A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter
16. X Other items or information: PCT/RO/101; PCT/IB/304; PCT/IB/301; PCT/IPEA/409; PCT/IPEA/416; PCT/IB/308; 3 sheets drawings

U.S. APPLICATION NO. (If known, use 37 CFR 1.492(a)(1)) <b>097485225</b>		INTERNATIONAL APPLICATION NO. PCT/FR98/01769		ATTORNEY'S DOCKET NUMBER 061.068	
<input checked="" type="checkbox"/> The following fees are submitted:  <b>Basic National Fee (37 CFR 1.492(a)(1)-(5)):</b> Search Report has been prepared by the EPO or JPO..... <b>\$840.00</b> International preliminary examination fee paid to USPTO (37 CFR 1.482) ..... <b>\$670.00</b> No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))..... <b>\$760.00</b>  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO..... <b>\$970.00</b>  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)..... <b>\$96.00</b>  <div style="text-align: center;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT</b></div> <b>\$840.00</b>				CALCULATIONS	PTO USE ONLY
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				<b>\$ 130.00</b>	
Claims	Number Filed	Number Extra	Rate		
Total Claims	11 - 20 =	0	X <b>\$18.00</b>	<b>\$0</b>	
Independent Claims	1 - 3 =	0	X <b>\$78.00</b>	<b>\$0</b>	
Multiple dependent claim(s) (if applicable)			+ <b>\$260.00</b>	<b>\$ 0</b>	
<b>TOTAL OF ABOVE CALCULATIONS</b>				<b>\$970.00</b>	
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28)				<b>\$0.00</b>	
<b>SUBTOTAL</b>				<b>\$970.00</b>	
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				<b>\$0</b>	
<b>TOTAL NATIONAL FEE</b>				<b>\$970.00</b>	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). <b>\$40.00</b> per property +				<b>\$0</b>	
<b>TOTAL FEES ENCLOSED</b>				<b>\$970.00</b>	
				Amount to be: refunded \$	
				charged \$	
a. <input checked="" type="checkbox"/> A check in the amount of <b>\$970.00</b> to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. <b>22-0185</b> in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <b>22-0185</b> . A duplicate copy of this sheet is enclosed.					
<b>NOTE:</b> Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status <b>SEND ALL CORRESPONDENCE TO:</b> <b>Pollock, Vande Sande &amp; Amernick, R.L.L.P.</b> Suite 800 Washington, DC 20036-3425					
				 SIGNATURE	
				Richard Wiener NAME 18.741 REGISTRATION NUMBER	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
	:	
Xavier JOUBERT, et al.	:	
	:	
Appln. No. To be assigned	:	Art Unit: Unassigned
(U.S. Natl. Phase of	:	
PCT/FR98/01769)	:	
	:	
Filed: February 7, 2000	:	Examiner: Unassigned
	:	
For: A HIGH-STRENGTH HOOK,	:	Atty Docket: 061/088
IN PARTICULAR FOR AN	:	
ELASTIC CABLE	:	

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination on the merits, please amend the above-identified patent application as follows:

**IN THE CLAIMS:**

Please amend the claims as follows:

Claim 4,

line 1, delete "or 3".

Claim 5,

line 1, change "any one of claims 1 to 4" to --claim 1--.

Claim 7,

line 1, delete "or 6".

Claim 8,

line 1, change "any one of claims 1 to 7" to --claim 1--.

Claim 9,

line 1, change "any one of claims 1 to 8" to --claim 1--.

Claim 10,

line 1, change "any one of claims 1 to 9" to --claim 1--.

Claim 11,

line 1, change "any one of claims 1 to 10" to --claim 1--.

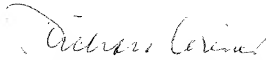
**REMARKS**

The claims have been amended to eliminate multiple dependencies.

No new matter has been added.

Examination on the merits of the above patent application is respectfully requested.

Respectfully submitted,



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Richard Wiener, Reg. No. 18,741  
Pollock, Vande Sande & Amernick, R.L.L.P.  
1990 M Street, N.W.  
Washington, D.C. 20036-3425  
Telephone: 202 331-7111

Date: February 7, 2000

A HIGH-STRENGTH HOOK, IN PARTICULAR FOR AN ELASTIC CABLE

The present invention relates to a hook of the type having, at one end, a handle block of synthetic material shaped to facilitate taking hold of the hook and having a passage passing therethrough for receiving and retaining in the block a cable to which the hook is to be fixed.

Such a hook is described in publication  
US 5 317 788, for example.

To retain the cable in the hook when traction is applied to the cable tending to extract it from the hook, the passage tapers so as to define an abutment for stopping the end of the cable once said end has been enlarged after being passed through the passage. In the embodiment described in the above-specified publication, the end of the cable is enlarged by folding the end back onto the cable and by holding the end in place in a metal ring, and the passage through the block is designed so as to receive the enlarged end of the cable when traction is applied to the cable in a direction tending to extract it from the hook, such that the enlarged end comes to bear against the abutment which stops it (Figures 4 and 5).

When very high levels of traction are applied, that retention can be insufficient.

An object of the present invention is to improve that retaining device.

According to the present invention, this is achieved by embedding an annular metal insert in the block around said passage, in the vicinity of said taper.

In a preferred embodiment, the insert constitutes one end of reinforcement which extends over the full length of the hook, thereby further improving the strength of the hook.

An embodiment of such a hook is described below with reference to the figures of the accompanying drawings, in which:

Figure 1 is a diagrammatic perspective view of the reinforcement of the hook;

· Figure 2 is a section of the hook including the axis of the passage through the handle block;

· Figure 3 is a longitudinal section of the hook fixed to a cable;

5       · Figure 4 is a diagrammatic perspective view of the crimped end of a cable retained in the passage of the handle block;

· Figure 5 is a perspective view of the hook provided with a safety tongue;

10       · Figure 6 is a view of the hook on a plane perpendicular to the plane containing the curve of the hook; and

· Figures 7 and 8 relate to detail variants.

In each case, the scale of the figures is  
15 appropriate for the corresponding explanations.

The reinforcement (A) of the hook is constituted (see Figure 1) by a rigid metal wire (A) having one end (1) curved into an upside-down J-shape and having its other end bent so as to lie in a plane perpendicular to  
20 the plane of the J-shape and curved so as to form an open or closed ring (3) therein.

The hook is preferably made of steel flat with an optionally rounded edge, the hook being formed edgewise so as to provide the greatest possible strength.

25       The ring (3) is substantially on the same axis as the top (S) of the curve of the J-shape and the shank (2) of the J-shape slopes slightly outwards going away from the ring.

This wire is placed in the cavity of an injection  
30 mold so as to be coated in a synthetic resin or some other suitable material. For this operation, it is possible for example to use polyethylene or polypropylene for conventional hooks, or a polyamide or a reinforced polyamide for hooks that need to withstand abrasion.

35       The cavity is shaped so that the injected material (M) (Figure 2) fits closely to the J-shaped portion (1) of the wire and to the shank (2), while being much

thicker around the base (2') of the shank (2) and around the ring (3) of the wire so as to provide a block (B) having a through passage (4) whose axis is in line with the top of the curve of the J-shape.

5       The overall thickness of the block in a plane perpendicular to the plane of the J-shape of the hook can, for example, be three to five times the thickness of the coated shank and it is four to eight times said thickness in a plane parallel to the plane of the J-  
10   shape, given the projecting portions presented by the block.

      The passage (4) forms an inlet duct (4a) which is cylindrical, for example, through which the end of a cable (5), preferably an elastic cable, is inserted into  
15   the hook, and it also forms an outlet duct (4b) whose shape is frustoconical, for example, opening out so as to face the curve of the J-shape, with the junction between the two ducts forming a shoulder (4c) which constitutes an abutment.

20       The mold cavity is designed so that the metal wire ring (3) is completely embedded in the injected material (M) and is situated around the inlet duct (4a) close to the shoulder (4c).

      In conventional manner, the end of the cable (5) is  
25   folded back onto itself and is crimped by means of a metal clip (6), e.g. a steel ring which is flattened after crimping. When traction is applied to the cable, this crimped end is caused to bear against the junction (4c) between the two ducts as reinforced by the ring (3)  
30   of the wire (1) (Figures 3 and 4).

      The invention is not limited to using a clip for fitting to the end of the cable. It can be substituted by any means capable of maintaining the enlarged end of the cable.

35       The inlet edge (9) of the inlet duct (4a) is rounded so as to avoid the presence of any sharp edge which could injure the cable.



This advantage does not exist in hooks where the synthetic material is molded directly onto the cable since under such circumstances:

- the plastics material becomes embedded in the cable, giving rise to sharp edges that can injure it; and
- contact between the molten material and the synthetic covering of the cable can degrade the covering.

The mold cavity is designed so that the handle block (B) is of any desired ergonomic shape, e.g. having lateral recesses (a, b, c, d) enabling the hook to be held between the fingers, together with projecting portions (e, f) against which the fingers can bear. The lateral recesses can be made in portions of the block which project from the block, such as the recess (a) situated beside the shank (2).

The projecting portion (e) which faces the end (E) of the hook serves for guidance purposes while the hook is being engaged on a bar or on any other part onto which it is to be hooked.

The molded block (B) can carry a pivoting safety tongue (7) suitable for bearing against the inside of the free end (E) of the hook (Figure 5), in conventional manner.

A plug can close the inlet to the passage (4a) around the cable, thereby giving the hook a finished appearance.

The free end (E) of the hook can receive very effective protection by being coated with an extra thickness of material (Figure 7).

A ring handle (8) can be provided to make the hook easier to use in some cases (Figure 8).

The strength of the hook is such that it can receive bars of large dimensions (P) and (P<sub>1</sub>), whereas with a standard hook these dimensions must be restricted so as to avoid weakening the ability of the hook to withstand being prized open.

Another, non-negligible advantage of the invention lies in the possibility of regularly inspecting the quality of the crimping and the quality of the elastic, which is not possible with hooks that are molded directly onto the cable.

It will also be observed that the coating material does not have any holes, whereas in earlier devices, the locations of parts for holding the metal core in the mold leave said core visible at certain locations of the over-molded product, thereby requiring said locations to be provided with additional protection so as to avoid oxidation and swelling of the core, which could possibly lead to the coating being destroyed.

The invention is not limited to the embodiment described but extends to any variant that can be obtained by replacing the means described with means that are functionally equivalent.

## CLAIMS

- 1/ A hook of the type comprising an end block (B) of synthetic material shaped to make the hook easier to hold in the hand and having a passage (4) passing therethrough  
5 for slidably receiving the end of a cable (5) to which the hook is to be fixed, said passage having a taper which defines an abutment (4c) for stopping the end of the cable, which is enlarged after it has passed through the passage, whenever traction is exerted on the cable  
10 tending to extract it from the passage, the hook being characterized in that an annular metal insert (3) is embedded in the block around said passage in the vicinity of said stop abutment (4c).
- 15 2/ A hook according to claim 1, including metal reinforcement constituted by a rigid wire (A) having one end (1) curved into an upside-down J-shape (Figure 1) and having its other end bent so as to be situated in a plane perpendicular to the plane of the J-shape and curved into  
20 a ring so as to constitute said insert (3).
- 3/ A hook according to claim 2, in which said annular insert (3) has an axis passing through the top (S) of the curve of the J-shape.
- 25 4/ A hook according to claim 2 or 3, in which the reinforcement wire (A) is a flat.
- 5/ A hook according to any one of claims 1 to 4, in which  
30 said passage (4) forms an inlet duct (4a) through which the non-enlarged end of the cable (5) is inserted into the hook, and an outlet duct (4b) larger than the inlet duct, and suitable for receiving the enlarged end of the cable and opening out so as to face the curve of the J-shape, said passage forming a shoulder (4c) at the  
35 junction between the two ducts, thereby constituting said abutment.

6/ A hook according to claim 5, in which the inlet edge of the inlet duct (4a) is rounded so as to avoid leaving any sharp edge which could injure the cable.

5

7/ A hook according to claim 5 or 6, in which the annular insert (3) surrounds said inlet duct (4a) in the vicinity of its junction (4c) with the outlet duct (4b).

10 8/ A hook according to any one of claims 1 to 7, in which the block has lateral recesses (a-d) and projections (e, f).

15 9/ A hook according to any one of claims 1 to 8, in which the block presents a tilting safety tongue (7) fixed to said block and suitable for bearing against the free end (E) of the hook on the inside of the hook.

20 10/ A hook according to any one of claims 1 to 9, in which the free end (E) is coated with extra injected material.

25 11/ A hook according to any one of claims 1 to 10, fixed to a cable (5) inserted in said passage and whose end that passes through said passage is folded back onto itself and crimped by means of a clip, said passage being shaped so as to receive the folded-back and crimped end of the cable when the cable is subjected to traction tending to extract it from the passage, until the folded-back and crimped end comes into abutment against the abutment formed in said passage.

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## A B S T R A C T

## A HIGH-STRENGTH HOOK, IN PARTICULAR FOR AN ELASTIC CABLE

5           The invention relates to a high strength hook. The hook comprises an annular metal insert (3) embedded in a synthetic material end block of the hook around a passage (4) for slidably receiving the end of a cable (5) in the vicinity of a stop abutment (4c) designed to stop the end of the cable in the traction direction. The invention is applicable to hooks comprising a metal hook having an end embedded in a handle block.

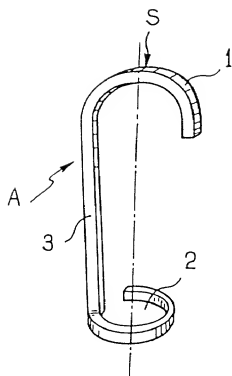
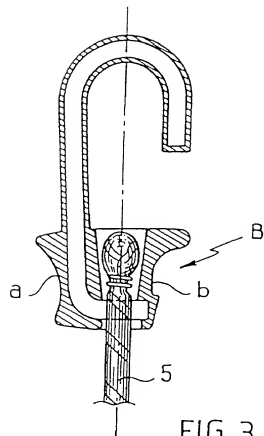
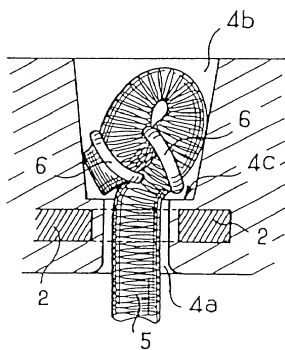
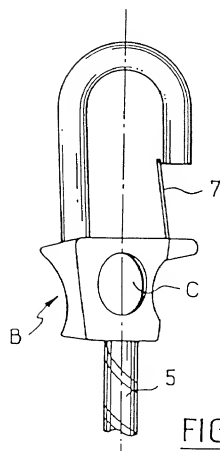
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35           Translation of the title and the abstract as they were when originally filed by the Applicant. No account has been taken of any changes that may have been made subsequently by the PCT Authorities acting ex officio, e.g. under PCT Rules 37.2, 38.2, and/or 48.3.

FIG. 1FIG. 3FIG. 4FIG. 5

2 / 3

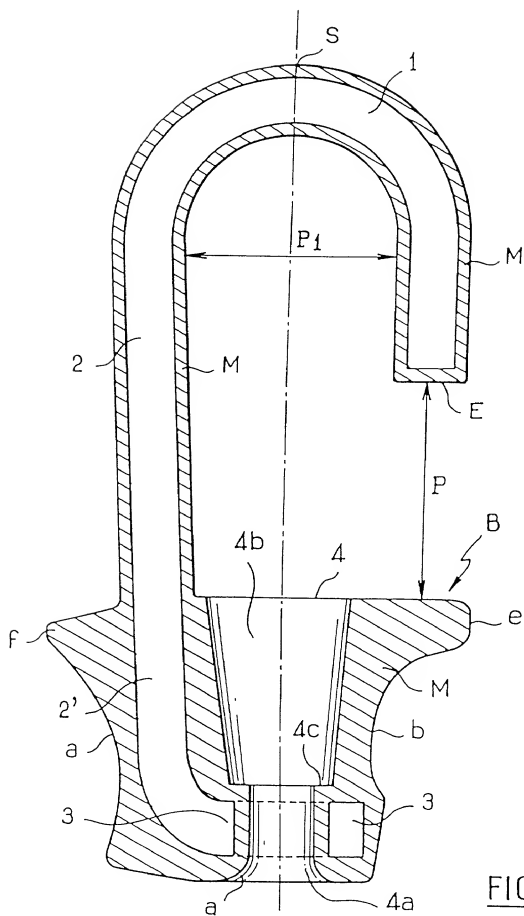
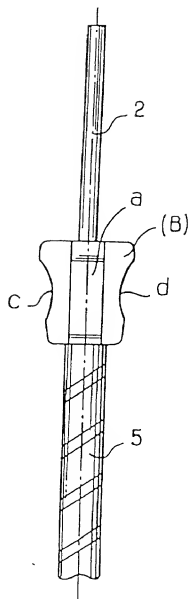
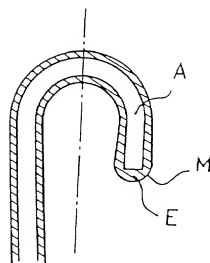
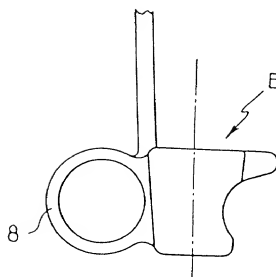


FIG. 2

FIG. 6FIG. 7FIG. 8



## DECLARATION AND POWER OF ATTORNEY

As a below-named inventor, I hereby declare: My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled A high-strength hook, in particular for an elastic cable, the specification of which

(check) ☐ is attached hereto.  
(one)

☐ was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_

and was amended on \_\_\_\_\_ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above, and acknowledge a duty to disclose information which is material to the examination of this application under 37 CFR 1.56(a). I hereby claim priority benefits under 35 U.S.C. 119 based on any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate on the present invention, filed before the application(s) on which priority is claimed.

FOREIGN APPLICATION(S), IF ANY, REFERRED TO ABOVE			
COUNTRY	APPLICATION NUMBER	DAY, MONTH & YEAR FILED	PRIORITY CLAIMED
FRANCE	97 10210	AUGUST 8, 1997	YES <u>X</u> NO _____
			YES _____ NO _____
			YES _____ NO _____

I hereby claim benefit under 35 U.S.C. 120 of any U.S. application(s) listed below. If the subject matter of any claim(s) of this application is not disclosed in the prior U.S. application(s) as required by paragraph one of 35 U.S.C. 112, I acknowledge a duty to disclose material information as defined in 37 CFR 1.56(a) regarding occurrences between the filing date of the prior application(s) and the national or PCT international filing date of this application:

APPLICATION SERIAL NUMBER	DAY, MONTH & YEAR FILED	STATUS
PCT/FR98/01769	AUGUST 7, 1998	PENDING

I hereby appoint Elliott I. Pollock, RN (Registration No. 16,906; George Vandesande, RN 17,270; Robert R. Priddy, RN 20,169; Burton A. Amernick RN 24,852; Stanley B. Green, RN 24,351; Richard Wiener, RN 18,741; Townsend M. Belser, Jr., RN 22,956; Morris Liss, RN 24,510; Charles E. Snee, III, RN 26,610; Martin Abramson, RN 25,787; Dean E. Carlson, RN 18,537; and George Pettit, RN 27,369, my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Address all communications to POLLOCK, VANDESANDE & PRIDDY, P.O. Box 19088, Washington, D.C. 20036.

All statements made herein of my own knowledge are true. All statements made on information and belief are believed to be true. These statements were made with the knowledge that willful false statements and the like so made are punishable by fine, imprisonment, or both, under 18 U.S.C. 1001 and may jeopardize the validity of the application or any patent issuing thereon.

Note: Please sign one full given name and your surname, using initials where appropriate for other names. It is important that the name be consistent throughout the application papers. Signing of an application more than five weeks prior to filing or an undated application is not acceptable to the Patent and Trademark Office except for receiving an initial filing date.

1. Full name of inventor JOUBERT Xavier Date: Feb. 9, 2000  
 Inventor's signature \_\_\_\_\_  
 Residence Avenue des Tuileries - 63600 AMBERT - FRANCE  
 Citizenship FRENCH  
 Post Office Address The same as residence
2. Full name of inventor JOUBERT Thierry Date: Feb. 9, 2000  
 Inventor's signature \_\_\_\_\_  
 Residence 12, rue Midi - 63600 AMBERT - FRANCE  
 Citizenship FRENCH  
 Post Office Address The same as residence
3. Full name of inventor \_\_\_\_\_ Date: \_\_\_\_\_  
 Inventor's signature \_\_\_\_\_  
 Residence \_\_\_\_\_  
 Citizenship \_\_\_\_\_  
 Post Office Address \_\_\_\_\_